

IN THE CLAIMS

Please amend the claims as follows:

Claim 1 (Currently Amended): A separator for an electrochemical cell, comprising:

- (A) a flexible perforate support,
- (B) a porous first ceramic material which fills the perforations in the support and which
 - (i) has a pore structure ~~which is characterized by~~ having an average pore size, and
 - (ii) is suitable for receiving an ion-conducting electrolyte,
~~characterized in that~~ wherein
- (C) ~~the~~ an electrolyte-contactable pore surface of the first porous ceramic material is covered with fine particles of a further material to extend the use life, the average size of the fine particles being in the range from 0.5 to 30% ~~and~~ preferably in the range from 1 to 15% of the average pore size of the ceramic material.

Claim 2 (Original): The separator of claim 1, wherein the material of the fine particles is identical to or different from the porous ceramic material.

Claim 3 (Original): The separator of claim 2, wherein the material of the fine particles is different from the porous ceramic material.

Claim 4 (Currently Amended): The separator of claim 2 ~~or 3~~, wherein the fine particles comprise SiO₂, Al₂O₃, ZrO₂ or SiC.

Claim 5 (Currently Amended): The separator of claim 2 ~~any of claims 2 to 4~~, wherein the fine particles comprise Li_2CO_3 , Li_3N , LiAlO_2 or $\text{Li}_x\text{Al}_y\text{Ti}_z(\text{PO}_4)_3$, ~~where and wherein~~ $1 \leq x \leq 2$, $0 \leq y \leq 1$ and $1 \leq z \leq 2$.

Claim 6 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, comprising an electrolyte for ion conductance, ~~preferably alkali and alkaline earth metal ion conductance and more preferably lithium ion conductance~~.

Claim 7 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the fine particles are incorporated in the porous first ceramic material and are exposed on the pore surface.

Claim 8 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the porous first ceramic material is coated with the fine particles.

Claim 9 (Currently Amended): The separator of claim 1, ~~any preceding claim, characterized in that~~ wherein the ceramic material has an average pore size in the range from 50 nm to 5 μm .

Claim 10 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the porous ceramic material comprising fine particles has a porosity in the range from 10% to 70% ~~and preferably in the range from 20% to 50%~~.

Claim 11 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the ceramic material comprises an oxide of zirconium, silicon and/or ~~preferably~~ aluminum.

Claim 12 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the first ceramic material is produced ~~producible~~ by solidifying a slip which contains particles having a large average particle size which determine the pore structure of the ceramic material and also particles having a smaller average primary particle size which adhere the large particles together in the course of the solidification of the slip.

Claim 13 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the perforate support comprises polymeric fibers, glass or ceramic.

Claim 14 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the perforate support comprises fibers, ~~preferably selected from fibers of polyamide, polyacrylonitrile, polyester and/or polyolefin, glass fibers or ceramic fibers.~~

Claim 15 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the support comprises fibers and/or filaments from 1 to 150 μm and ~~preferably from 1 to 20 μm in diameter~~ and/or yarn from 3 to 150 μm and ~~preferably from 10 to 70 μm in diameter~~.

Claim 16 (Currently Amended): The separator of claim 1 ~~any preceding claim~~, wherein the support is a nonwoven having a pore size from 5 to 500 μm and ~~preferably from 10 to 200 μm~~ .

Claim 17 (Currently Amended): The separator of claim 1, ~~wherein the separator any preceding claim that is stable under service conditions at not less than 100°C, preferably at not less than 150°C and most preferably at not less than 180°C.~~

Claim 18 (Currently Amended): The separator of claim 1, wherein the separator ranges any preceding claim, from 10 to 1 000 μm , ~~preferably from 10 to 100 μm and most preferably from 10 to 50 μm~~ in thickness.

Claim 19 (Currently Amended): The separator of claim 1, wherein the separator any preceding claim that tolerates a bending radius down to 100 mm, ~~preferably down to 20 mm and most preferably down to 1 mm~~.

Claim 20 (Currently Amended): A process for producing a separator for an electrochemical cell as claimed in claim 1 ~~any of claims 1 to 19~~, comprising the following steps:

- (a) applying a dispersion as a thin layer onto and into a woven and/or nonwoven, the dispersion comprising:
 - (a1) large ceramic particles whose average particle size provides a pore structure to the thin layer that is characterized by having an average pore diameter,
 - (a2) fine particles whose average particle size is in the range from 0.5 to 30% ~~and preferably in the range from 1 to 15%~~, of the average particle size of the ceramic material, and also
 - (a3) optionally, ceramic particles having an average primary particle size which is substantially less than the average particle size of the ceramic particles as per (a1) and (a2)[[,]]; and
- (b) solidifying the dispersion at a temperature from 100°C to 680°C to form a separator.

Claim 21 (Currently Amended): The process of claim 20, wherein the dispersion in step (a) further comprises a sol, ~~preferably of the elements aluminum, zirconium and/or silicon.~~

Claim 22 (Currently Amended): A process for producing a separator for an electrochemical cell as claimed in ~~claim 1 any of claims 1 to 19~~, comprising the following steps:

- (i) providing a composite formed from a perforated support, ~~preferably a woven and/or nonwoven,~~ and also a porous ceramic material whose pore structure is characterized by having an average pore size~~[,]~~;
- (ii) treating the composite with a dispersion of fine particles having an average particle size in the range from 0.5 to 30% ~~and preferably in the range from 1 to 15%~~ of the average pore size in a dispersion medium so that the electrolyte-accessible pore surface of the composite is coated with the dispersion and the dispersion ~~preferably contains~~ comprises from 1 to 25% by weight, especially ~~from 5 to 15% by weight of fine particles; and~~
- (iii) drying the dispersion at a temperature in the range from 100°C to 680°C so that the coated pore surface is coated with the fine particles.

Claim 23 (Currently Amended): The process of claim 22, wherein the composite is a separator which is ~~obtainable~~ obtained by the process of claim 20 or 21.

Claim 24 (Currently Amended): The process of ~~claim 20 any of claims 20 to 23~~, wherein the dispersion ~~contains~~ comprises one or more additional components selected from the group consisting of adhesion promoters, dispersing assistants, agents for setting the

viscosity, agents for setting the flow properties or and other customary assistants for producing dispersions.

Claim 25 (Currently Amended): The process of claim 20 any of claims 20 to 24, wherein the dispersion medium contains water and the fine particles are hydrolysis-stable element oxide particles.

Claim 26 (Currently Amended): The process of claim 20 any of claims 20 to 24, wherein the dispersion medium is an anhydrous organic solvent and the fine particles comprise hydrolysis-sensitive materials.

Claim 27 (Currently Amended): The process of claim 20 any of claims 20 to 26, wherein the ceramic particles comprise a material selected from the group consisting of aluminum oxide, silicon oxide, and zirconium oxide or and mixtures thereof.

Claim 28 (Currently Amended): An electrochemical cell, especially a lithium battery, lithium ion battery or a lithium polymer battery, wherein the cell comprises a separator as claimed in claim 1 any of claims 1 to 19.

Claim 29 (Canceled).